# Factors Affecting Academic Performance of the Girl Students

## Evidence from West Bengal

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**Abstract**

*The importance of academic performance at each education level is well recognised by the researchers as it helps the people to achieve various positive outcomes of what they value. This paper aims to give some insights about the factors influencing academic performance of the girl students of their XII Grade. For this purpose, the information has been collected from the girl students of East and West Midnapore district who appeared in their XII standard Board exam in 2013. Apart from using various statistical tools, it has applied multi-regression modes to assess the impact of the various socio-economic factors on academic performance of the girl students. The study shows that the students who belong to APL families, who are Hindus, who stayed at home, who have minor children in their families are more likely to perform better in their examination of XII Grade. Moreover, daughter of higher educated women, regular attendance also positively affects the academic performance of the students. The most influencing factor in this study is the support from private tutor. It is found that the students taking private coaching from hired tutor have been awarded higher marks in their examination. However, women of socially disadvantaged group who use technology are less likely to achieve better academic scores in their examination of XII Grade. Further research*

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*is needed to explore the students' high dependence of private tutor for their academic achievement. It might be due to the poor quality of teaching, higher student strength in a class or students' attitude to follow short cut policy to achieve better score rather than to gather knowledge.*

Academic achievement is one in all the necessary social indicators that is connected with a range of positive outcomes what people value. The students having poor academic record are more likely to be denied with access to higher education as well as to enter the reputed schools which further enhance the educational performance gap. The academically successful persons are more likely to be employed in the modern sector and have better earnings which determine their social identity and status. Moreover, the employers in the labour market are more likely to choose the academically successful individuals in a situation of excess supply of labour.

Except these tangible benefits, individuals having higher academic performance have higher self-esteem, lower level of depression and anxiety which are again considered to be crucial inputs in commitment to academic success. Therefore, the academic performance gap is growing with the ages, which is coined as 'Cumulative Advantage Process (CAP)' by Merton (1973). The current level of accumulation affects future level of accumulation and an inequality at any stage produces inequality in the later stage (Bast & Reitsma 1998).

The nation/society that aims to bring equality among individuals, irrespective of different socio-economic and cultural environment they belong, try to reduce the academic performance gap by adopting/introducing various programmers/Acts. In India, such programmers/Act are Right to Education Act (2009), Sarba-Siksha Abhizan (2000-2001), Mid-day meal scheme (1995), reservation in the academic institution for the socially backward students etc. The objective of these programmes is not only to the educational attainment of the individuals, but to reduce educational performance gap among individuals. The success of the programme could only be achieved through proper identification of the factors that lead to this academic performance gap.

As per the National Achievement Survey (2014) conducted by the National Council of Educational Research and Training (NCERT), at all India level, class III children were able to answer 64 per cent of language items, whereas for Mathematics the corresponding figure is 66 per cent. A state wise wide variation has been observed in this regard. The performance scores for language items vary from 74 per cent in Daman and Diu to 51 per cent in Chhattisgarh. Like language items, in Mathematics the highest performing union territories is Daman and Diu and lowest performing state is Chhattisgarh.

As regards average scores of language items Tripura ranked first and its average score is 23 point higher than the national average (257). Most of the southern states and the union territories have been performed better both in language group as well as in Mathematics. The maximum average score in Mathematics has been achieved by Daman and Diu (279), whereas, Chhattisgarh has the lowest average scores in Mathematics. Analysis of academic scores by social groups reveals that there are no significant differences in average scores between boys and girl students for both the language items and Mathematics at the national level, though in few states, namely, Madhya Pradesh, Kerala and Pondicherry have experienced significant differences in average scores between boys and girl students for language items. For Mathematics, only in Kerala, the average score of girl students is found to be higher than the boy students.

As regards rural-urban academic performance gap in language items, in some states and union territories, namely, Maharashtra and Dadra and Nagar Haveli, rural students performed better than the urban students, whereas, in Jammu and Kashmir, Mizoram, Tripura, Jharkhand, Daman and Diu, the urban students performed better than the rural students in this regard. For Mathematics, no significant differences in Rural-urban academic performance have been observed for neither in all India level nor in any state or union territories.

For schedule caste students, the average score for language items vary from 292 in A and N Island to 216 points in Chhattisgarh, whereas for schedule tribe students, the Pondicherry ranked first and Chandigarh is the lowest performing state. The state wise variations appear to be less for the students belonging to the OBC and other category. Same scenario has also been observed in case of Mathematics. Again variations in academic performance by social groups in each state have also been observed.

From the above report it can be concluded that variations in academic performance by social group, by region and also by gender in some extent exists in spite of introducing several education programme in India. In order to understand the impact of various factors on academic performance of the girls' students, some scholars examined the relationship between the socio-economic-institutional environment and the students' academic performance.

According to Todaro (1977), various individual characteristics and household and non-household environment can determine whether or not the child will perform well in school and in later life. These factors include the health and feeding habits of mothers during pregnancy, the Childs' own health and nutritional status during his/her first few

years of life, the family's income and living conditions, income level of the family, parents' education, housing conditions, number of children in households, etc. Smith, Fagan and Ulvund (2002) had asserted that the parental socio-economic status (SES) is a significant contributor of intellectual performance of minor students. In the same vein, other researchers had posited that parental SES could affect school children to adjust to the different school schedules (Guerin et al., 2001). In a study in Nigeria, Oni (2007) and Omoegun (2007) had averred that there is significant difference in behaviour among students from high and low socio-economic status. The health status of the children which could also be connected to parental socio-economic background can be another factor to affect the academic performance of the students (Adewale, 2002; Eze, 2002).

The empirical literature, among other things, have highlighted the different aspect of students' academic performance such as their social and economic status etc. but in Indian context, the issue of various factors affecting the academic performance of the students has hardly been explored. Moreover, the individual characteristics, which affected the students' academic performance, have been emphasised in most of the studies. On the other hand, the household characteristics are relatively less explored. Household level characters are important in assessing the academic performance of the girls' students as it often reflects the unobserved attitude of other family members towards their girl children whereas, some other factors exhibit the opportunities available to them. The present paper considered all these factors in explaining the academic performance of the girl students. In this process, some important questions are answered here: how far the academic performance of the girl students is affected by their socio-economic environment? Have household level factors influenced the academic performance of the girl students? What is the contribution of other opportunities like number of private tutor, residential school, uses of modern information system in determining academic performance of the student? To obtain answer to above questions, we have collected primary data from the undivided Midnapore district of West Bengal. Before doing so, we have briefly discussed the present status of the academic performance of the students of grade III by using the secondary data.

The paper is divided in five sections. The sources of secondary data and methodology followed for collection of primary data are reported in section II. In Section III, we discuss the socio-economic characteristics of the girls' students and econometrically examine the importance of various factors in determining the academic performance of the girl students. The final section IV provides main conclusions of this study.

## Data Base and Methodology

The present study is based on both the secondary and the primary data. We analyzed the academic performance of the children of class three in different states and in all India level with the help of secondary data collected from the report of National Council of Educational Research and Training (National Achievement Survey-2014). However, as the objective of our study is to obtain an in-depth understanding of the academic performance of the girls students in East and West Midnapore districts, we supplemented our secondary data based analysis with the analysis of primary data. The analysis of primary data helps us to understand the social, economic and institutional contexts in ensuring the academic performance of the girl students.

To study the above objective we have collected the data from the students who appeared their XII grade examination from different schools situated in East Midnapore, West Midnapore districts. They appeared in the examination under the same board and in the year 2013. We have collected data from 278 students, out of which 188 from Arts stream and remaining from science stream. Information regarding their social, cultural, economic status, education level of parents, distance of residence from school, uses of technology etc. has collected to explain the variability of academic performance of the students. Simple statistical tools like percentage, correlation coefficients''t' test for differences in mean have been used to analyse the above said objectives. Apart from this, we have used the multi-variable regression model to analyse the effects of a particular factor on academic performance of the girl students.

## Determinants of the Academic Performance of the Girls

The academic performance of the girl students depends on a number of factors that represent their economic and social status. In this study, the social-economic status of the respondents is captured in terms of their caste, poverty status, religion, academic performance of the parents, presence of minor children, engagement in formal sector by the household members, level of education of mother, employment status, family income group and educational expenditure. The institutional factors that we captured in this study are provision of stipend, attendance, library visit. The other factors that we considered here are uses of digital gadgets (technological factors), members of other organisations. Here the academic performance of the girl students is measured by the average marks they obtained in their XII standard and information is collected from the 1st year college students who have admitted in their U.G course.

Table 1 presents the academic performances of the girl students by their poverty status. It appears from

the Table 1 that the average marks of the students of the arts stream belonging to the APL families is nearly 67 per cent whereas for BPL families this figure is 66 per cent. The differences between the average marks of the students of APL and BPL families is statistically significant as revealed by 't' statistics. For science stream, the average marks of APL students is 1 percentage point higher than that of the BPL families and this differences is not statistically significant.

To measure the differences in average marks of the students, we consider two group: one non-general group which include the SC, ST and OBC students; and another is general group which includes the students of the general category. It observed from Table 2 that for both arts and science stream, the average marks of students of non-general category is found to be higher than that of general students, though this differences turned to be insignificant in both cases.

While examining the academic performance of the students by religion, we observed that the non-Hindu students performed better academically than the Hindu students in both the arts and science stream. In Arts stream, this difference is nearly three percentage points whereas for science stream it is found to be six percentage points but in both cases this differences are found to be statistically insignificant.

**Table 1**

**Academic Performance and Poverty Status**

| Stream | Arts | Average | Science | Average |
|---|---|---|---|---|
| APL | 134 | 66.71 | 78 | 68.64 |
| BPL | 54 | 60.46 | 12 | 69.98 |
| Total | 188 | 63.59 | 90 | 69.31 |
| 't' statistics | 0.00 | | 0.74 | |

*Source:* Primary data

**Table 2**

**Academic Performance and Social Status**

| Social Status | Arts | Average | Science | Average |
|---|---|---|---|---|
| Non General | 52 | 65.71 | 25 | 69.84 |
| General | 136 | 64.62 | 65 | 68.43 |
| Total | 188 | 65.17 | 90 | 68.82 |
| 't' statistics | 0.63 | | 0.65 | |

*Source:* Primary data

**Table 3**

**Distribution of Students by Stream and by religion**

| Stream | Arts | Average | Science | Average |
|---|---|---|---|---|
| Hindu | 169 | 61.94 | 83 | 68.32 |
| Non-Hindu | 19 | 65.26 | 7 | 74.79 |
| 't' statistics | 0.32 | | 0.21 | |

*Source:* Primary data

**Table 4**

**Academic Performance and Family Size**

| Family size | No. of students in Arts | Average marks | No. of students in Science | Average marks |
|---|---|---|---|---|
| 0-3 | 20 | 66.56 | 10 | 67.45 |
| (4-5) | 118 | 64.28 | 57 | 69.74 |
| (6-7) | 37 | 66.78 | 16 | 69.74 |
| 8 and above | 13 | 63.18 | 7 | 61.17 |
| Total | 188 | 65.2 | 90 | 67.02 |
| Correlation coefficient | -0.04 | | -0.06 | |

*Source:* Primary data

**Table 5**

**Academic Performance and presence of Minor Children**

| No. of minor children | No. of students in Arts | Average Marks | No. of students in Science | Average Marks |
|---|---|---|---|---|
| 0 | 80 | 66.99 | 46 | 67.19 |
| 1 | 82 | 66.78 | 32 | 69.69 |
| 2 | 20 | 66.64 | 11 | 72.05 |
| 3 | 4 | 62.08 | 1 | 80.00 |
| 4 | 2 | 53.07 | 0 | 0.00 |
| Total | 188 | 64.93 | 90 | 68.82 |
| | | | | |
| Correlation coefficient | 0.08 | | 0.16 | |

Source: Primary data

There are not so much differences in academic performance in both the stream by their family size. Relationship between the family size and the academic performance of the students in the arts as well as in the

science stream turned to be negative but insignificant.

One interesting features that we observed in our study area that the presence of minor children (age less than 15 years) positively affects the academic performance of the students both in the science and the arts stream. In science stream, this association is much stronger than the arts stream though in both cases it turned to be statistically insignificant.

In our survey area, academic performance of the students appeared to be positively related with their parents' educational level and it turned to be significant for the students of the Arts stream. Average marks of the arts students is found to be nearly 72 per cent for higher educated group of parent (total years of schooling of both the parents is 30 and above). For students of science stream, this relationship is negative but insignificant.

Mother's education of the students is considered to be one of the main indicators of academic performance as higher educated women are expected to guide and help them properly. In our study areas mothers' education is positively associated with the academic performance of the students both in the arts and the science stream. The relationship between the mothers' education and the academic performance of the students is found to be significant for the arts stream, whereas for science stream it turned to be statistically insignificant.

In our study areas private coaching for the students is a general phenomenon. Parents generally hire the private tutor for the coaching of their children. This indicator can be used as proxies of indicator like lack of quality teaching in the institution they studied[1]. Here information has been collected from the students of XII standard where the numbers

**Table 6**

**Academic Performance and the Parents Education**

| Education level | No. of students in Arts | Average Marks | No. of students in Science | Average Marks |
|---|---|---|---|---|
| (10-15) | 7 | 67.65 | 2 | 73.00 |
| (16-20) | 35 | 58.10 | 7 | 64.97 |
| (21-25) | 76 | 64.87 | 36 | 70.02 |
| (26-30) | 57 | 67.34 | 27 | 68.12 |
| 30 and above | 13 | 71.58 | 18 | 68.49 |
| Total | 188 | 65.09 | 90 | 68.92 |
| Correlation coefficient | 0.22* | | -0.03 | |

*Source:* Primary data
*Note:* * implies 1 per cent level of significant

of subjects they have chosen in XII standard are the same.

The Table 8 presents the academic performance of the students and the number of private tutor offer private tuition to them. It is found from the table that the students taking private coach from hired tutor have awarded higher marks in their examination both in the arts stream and the science stream. Moreover, the association between these two variables is found to be positive and statistically significant for both the stream.

Other some indicators like their residence during study, uses of digital gadgets, regular attendance in the school, library visit, student scholarship etc. may have some influence on academic performance of the students. In this section, we try to give some insights on these variables.

Table 9 present the academic performance of the students by their type of residence. It is found that the student, who stayed in home during study, performed well that the students staying outside home, i.e. in hostel, mess etc. The differences in average academic scores between the students who have stayed in home and the student, who did not, appeared to be statistically significant for the science stream but turn to be insignificant for the arts stream.

Uses of phone, internet etc. is assumed to be enhanced access to information and thereby affect the academic performance of the users of this informational asset. In our study area the uses of informational asset adversely affects the academic performance of the students both in the science and the arts stream. In the arts stream, the average academic score of non-users of informational asset is found to be nearly 66 per cent as compared to the 64 per cent

**Table 7**

**Academic Performance and the Mothers' education**

| Mother education | Arts | Average Marks | Science | Average Marks |
|---|---|---|---|---|
| 0 | 7 | 67.64 | 1 | 68.8 |
| (1-10) | 121 | 62.58 | 44 | 69.28 |
| (11-12) | 27 | 67.66 | 18 | 66.73 |
| 13-15 | 28 | 71.06 | 21 | 69.19 |
| 16 and above | 5 | 68.76 | 6 | 70.43 |
| Total | 188 | 67.54 | 90 | 68.8 |
| Correlation coefficient | 0.21* | | 0.01 | |

*Source:* Primary data

*Note:* * implies 1 per cent level of significant

**Table 8**

**Academic Performance and Number of Private Tutor**

| No. of private tutor | No. of students in Arts | Average Marks | No. of students in Science | Average Marks |
|---|---|---|---|---|
| 0 | 9 | 63.03 | 15 | 61.16 |
| (1-2) | 75 | 57.72 | 19 | 65.96 |
| (3-4) | 66 | 69.21 | 24 | 67.79 |
| (5-6) | 30 | 70.95 | 26 | 75.20 |
| 7 and above | 8 | 76.64 | 6 | 73.49 |
| Total | 188 | 64.93 | 90 | 68.82 |
| Correlation coefficient | 0.41* | | 0.37* | |

*Source:* Primary data
*Note:* * implies 1 per cent level of significance

**Table 9**

**Academic Performance and type of Residence**

| Type of residence | Arts | Average | Science | Average |
|---|---|---|---|---|
| Home | 160 | 65.46 | 57 | 70.62 |
| Outside home | 28 | 61.87 | 33 | 65.7 |
| Total | 188 | 64.93 | 90 | 68.82 |
| 't' statistics | -1.29 | | -1.75*** | |

*Source:* Primary data
*Note:* ** *implies 10 level of significance

**Table 10**

**Academic Performance and Uses of Digital Gadgets**

| Use of digital gadgets | Arts | Average | Science | Average |
|---|---|---|---|---|
| Yes | 55 | 64.42 | 42 | 63.99 |
| No | 133 | 66.14 | 48 | 74.32 |
| Total | 188 | 64.93 | 90 | 68.82 |
| 't' statistics | 0.79 | 4.09* | -1.75*** | |

*Source:* Primary data
*Notes:* * implies 1 per cent level of significant

of the users of the same. However, for science stream, this differences is appeared to be very high (nearly 10 percentage points) and statistically

significant. This result might be due to the misuse/or the lack of capacity to use it for academic purposes by the students.

Regular school attendance of the students is expected to help students to grab in-depth knowledge about their subjects and thereby improve their academic performance. In our study areas, school attendance does not make any significant differences in achieving academic performances in both the stream. However, in the arts stream, performance of the students having regular school attendance, performed poorly as compared to the students who did not attend the school regularly whereas, the situation is reversed for the science stream.

The above analysis shows how different socio-economic and institutional factors are associated with the academic performance of the students. But the magnitude of these differences cannot be assessed with above analysis. The magnitude of different factors affecting academic performance of the students is analysed with the help of multi-variable regression model. To avoid the problem of multi co-linearity we used two different models for arts stream, science stream and the combined group.

In the first model we considered the poverty status (PSTATUS, value '1' is assigned to the APL students and '0'otherwise), Caste (CASTE, value '1' is assigned to the general category students and '0' for otherwise), Religion (RELIGION, value '1' is assigned to the Hindu students and '0' for otherwise), Presence of minor children in the family (CHILDREN, value '1' is assigned to the student whose family have minor children and '0' for otherwise) and where they stayed during their in XII standard (RESIDENCE, value '1' is assigned to the students who stayed home and '0'otherwise). The other model consists of five variables, namely, Education of the mother (M_EDUCATION , the variable is measured in terms of years of schooling), number of private tutor taught them (P_TUTOR), distance of the school from their residence

**Table 11**

**Academic Performance and School Attendance of the Students**

| Regular Attendance | Number of students in Arts | Average | Number of students in Science | Average |
|---|---|---|---|---|
| Yes | 167 | 64.49 | 72 | 69.74 |
| No | 21 | 68.37 | 18 | 65.13 |
| Total | 188 | 64.93 | 90 | 68.82 |
| 't' statistics | 1.23 | | -1.35 | |

*Source:* Primary data

(measured in terms of kilometer), usage of digital gadgets like mobile, internet etc (D_GADGET, value '1' is assigned to the students who use these and '0' otherwise, regular attendance (R_ATTENDENCE, value '1' is assigned to those students who regularly attend class and '0' for otherwise).

## Results of the Regression Models

The results of the regression models are presented in Table 12, Table 13 and Table 14. For students of arts stream and combined group, it is found that the students of better-off families are more likely to receive better academic score in their XII grade. This variable is turned to be significant (Model I of Table 12). However, for students of science stream, the effect of this variable is negative but does not have any significant effects on academic performance of the students (Model I of Table 13).

As regards to caste, students hailed from the socially backward section of the society are more likely to achieve better academic score in their XII grade, for both the students of science, arts stream and combined group, though the effects of this variable are not significant in all the three cases. Students belonging to the Hindu communities performed well if they choose the arts stream. However, for science stream, the non-Hindu students performed better than the Hindu students. In both cases, this variable turned to be insignificant.

Presence of other children of age group of 0-15 years in the family has a positive effect on academic performance of the students of both

**Table 12**

**Result for Regression Models for Arts Stream**

| Model-I | | | | Model-II | | | |
|---|---|---|---|---|---|---|---|
| ***Variables*** | ***Co-efficient*** | ***Standard*** | ***t*** | ***Variables*** | ***Co-efficient*** | ***Standard*** | ***t*** |
| PSTATUS | 5.90 | 2.17 | 2.72* | M_EDUCATION | 0.30 | 0.28 | 1.08 |
| CASTE | -0.34 | 2.23 | -0.15 | P_TUTOR | 2.79 | 0.54 | 5.16* |
| RELIGION | 2.93 | 3.24 | 0.93 | DISTANCE | 0.02 | 0.10 | 0.19 |
| CHILDREN | 3.52 | 2.00 | 1.75** | D_GADGET | -1.90 | 2.05 | -0.93 |
| RESIDENCE | 3.07 | 2.78 | 1.10 | R_ ATTENDANCE | -2.37 | 2.95 | -0.80 |
| Constant | 53.63 | 4.69 | 11.43* | Constant | 56.94 | 3.81 | 14.95* |
| No of observation | 188 | | | No of observation | 188 | | |
| $R^2$ | 0.07 | | | R2 | 0.18 | | |
| F (5, 182) | 2.71** | | | F(5, 282) | 8.15* | | |

*Sources:* Primary data

*Note:* * and ** imply 1 per cent and 5 per cent level of significance

**Table 13**

**Result for Regression Models for Science Stream**

| Model-I | | | | Model-II | | | |
|---|---|---|---|---|---|---|---|
| ***Variables*** | ***Co-efficient*** | ***Standard*** | ***t*** | ***Variables*** | ***Co-efficient*** | ***Standard*** | ***t*** |
| PSTATUS | -0.14 | 4.38 | -0.03 | M_EDUCATION | 0.51 | 0.37 | 1.38 |
| CASTE | -1.72 | 3.29 | -0.54 | P_TUTOR | 2.24 | 0.52 | 4.29* |
| RELIGION | -5.20 | 5.37 | -0.99 | DISTANCE | -0.02 | 0.04 | -0.35 |
| CHILDREN | 2.21 | 2.83 | 0.78 | D_GADGET | -11.12 | 2.51 | -4.44* |
| RESIDENCE | 4.49 | 2.91 | 1.54 | R_ ATTENDANCE | 6.9 | 2.97 | 2.32* |
| Constant | 71.04 | 7.3 | 9.74* | Constant | 56.12 | 4.99 | 11.25* |
| No of observation | 90 | | | No of observation | 90 | | |
| $R^2$ | 0.16 | | | R2 | 0.36 | | |
| F(5, 84) | 1.06 | | | F(5, 84) | 9.5* | | |

*Sources:* Primary data
*Note:* * and ** imply 1 per cent and 5 per cent level of significance

**Table 14**

**Result for Regression Models for Combined Stream**

| Model-I | | | | Model-II | | | |
|---|---|---|---|---|---|---|---|
| ***Variables*** | ***Co-efficient*** | ***Standard*** | ***"t"*** | ***Variables*** | ***Co-efficient*** | ***Standard*** | ***"t"*** |
| PSTATUS | 5.46 | 1.88 | 2.90* | M_ EDUCATION | 0.37 | 0.21 | 1.70*** |
| CASTE | -1.21 | 1.80 | -0.67 | P_TUTOR | 2.49 | 0.39 | 6.36* |
| RELIGION | 1.28 | 2.76 | 0.47 | DISTANCE | -0.01 | 0.04 | -0.19 |
| CHILDREN | 2.98 | 1.62 | 1.85** | D_GADGET | -5.93 | 1.67 | -3.78* |
| RESIDENCE | 2.84 | 1.93 | 1.47 | R_ ATTENDANCE | 2.15 | 2.14 | 1.00 |
| Constant | 57.88 | 3.76 | 15.4* | Constant | 56.62 | 3.05 | 18.58* |
| No of observation | 278 | | | No of observation | 278 | | |
| $R^2$ | 0.5 | | | R2 | 0.21 | | |
| F(5, 182) | 2.89** | | | F(5, 282) | 14.21* | | |

*Sources:* Primary data
*Note:* * and ** imply 1 per cent and 5 per cent level of significance

arts and science stream but it appears to be insignificant in both the cases. It is opposite to our hypothesis as it is expected that the presence of other children in the family would reduce the cost of education per child as well as the time required to guide them by the parents. In our study most of the

families have either no children or one children besides the respondents and this might be contributed to this positive association between the academic performance of the students and the number of children presence in their families.[2]

Another factor that affects the academic performance of the students of both the arts and science stream is the students' residence i.e. where they stay. In our study, it is found that the students who stayed home are more likely to perform better in their academic scores. Family environment as well as parent's guidance etc. might contribute to achieve better scores. Though, the effect of this variable is turned to be insignificant.

In this analysis, for Model-I, the co-efficient of determination ($R^2$ value) is 0.07 for the Arts stream and 0.16 for the science stream, which means 7 per cent and 16 per cent of the total variation of academic performance of the arts and science students respectively can be explained by the above said variables. The illustrative $R^2$ values highlight very weak linear reliability between academic performance of the students and these socio-economic variables and family structures.

We also run another sets of regression model separately for arts, science and combined group. In this analysis, we have considered five variables, namely, education of the mother, number of private tutor taught them, distance of the school from their residence, usage of digital gadgets like mobile, internet etc. and regular attendance.

Mothers' education which is measured in terms of years of schooling of mother is positively associated with the academic performance of the students and it turned to be statistically significant for the combined group. The effect of this variable is higher for the students of the science stream than the arts stream. Higher educated mother might be more capable to guide their daughter, which in turn, helps to achieve better academic scores.

In our study areas, the prevalence of private tutor for guiding students is a very common phenomenon. Number of teachers has been considered as a variable to explain the differences in academic scores of the students. The result shows that the students taking help from private tutor are more likely to perform better in their XII grade. Taking help from one private tutor would help to get higher marks by nearly three percentage points for the arts students and the nearly 2 percentage points for the science students. It is also found from the results that this variable significantly affects the academic performance of the students as revealed by the value of the 't' statistics.

Distance of the academic institution from the residence of the students is appeared to be negatively associated for the students of the arts stream and the combined group, however for arts students, this association is found to be negative.

In all the cases, this variable does not have any significant effect on academic performance of the student.

The access to digital gadgets like mobile, internet etc. is expected to enhance the students' accessibility of the information, which in turn helps them to achieve better academic scores. In our study area, the result does not support this argument. The access to digital techniques reduces the academic scores of the science students by more than 11 percentage points and for combined group the corresponding figure is nearly 6 percentage points. In both the cases this association turned to be statistically significant, whereas for arts students this association turned to be insignificant.

Regular attendance in the class by the students is used in this study as a variable to explain the differences in academic scores. It affects the academic performance of the students in two ways. Quality of teaching in the school, students' motivation to attend class etc. could be reflected by this variable. More value the students attach in schooling, the more will be their attendance and vice versa. However, this value attachment is argued to be associated with quality teaching. High quality teaching is expected to motivate the students to attend the class regularly and thereby affects their academic performance. In our study, regular attendance of the students is positively and significantly associated with the academic performance of the science students. For arts students, this relationship is found to be negative and insignificant. For science stream, students' lab-based practical assignment might lead to their higher attendance in the school which led to the higher academic scores.

The above said five factors explained 18 per cent of total variations of the academic performance of the arts students, whereas for science students, these variables explain 36 per cent of total variations. For combined group, the corresponding figure is found to be 21 per cent. The values of 'F' statistics indicate the overall significance of the Models for the entire three respective groups.

## Conclusion

The importance of academic performance at each education level is well recognised by the researchers as it help the people to achieve various positive outcome what they value. However it is well recognised that the academic performance of the students at various education levels are influenced by various social, economic, institutional and cultural factors. In India, NCERT and ASER (Annual Status of Education Report) regularly publish the reports regarding the academic performance of the students of Grade-III and Grade-VIII where the concerned agencies formulated the tools for performance tests. But the report regarding the academic performance of the students of the XII grade, who appeared in the examination

under the same education Board, is hardly assessed. Moreover, most of the study deals with the gender gap in academic performance, but the variations in academic performance among the students of same gender are rarely documented. In this context, this study aims to give some insights about the factors influencing academic performance of the girl students of their XII Grade.

To study the above objective we have collected the data from the students of East and West Midnapore district in West Bengal who passed their XII grade examination in 2013 and now studied in 1st year under graduate course. They appeared in the examination under the same board and in the same year. We have collected data from 278 students, out of which 188 from Arts stream and remaining from science stream. Information regarding their social, cultural, economic status, education level of parents, distance of residence from school, uses of technology etc. has collected to explain the variability of academic performance of the students. Percentages, correlation coefficient 't' test for differences in mean have been used to analyse the above said objectives. Apart from this, we have used the multi-variable regression model to analyse the effects of a particular factor on academic performance of the girl students.

Regarding the socio-economic status of the students, the study reveals that most of the students belong to APL families, general caste category and Hindu family. Regarding household level characters, most of the students belong to medium size families and where presence of minor children is less. As regards parents education, maximum parents jointly have schooling more than 20 years and above, whereas the mothers of the students, especially in arts stream is X standard and below.

Many past scholars have argued that some person specific characteristics as well as their households' characteristics affect the academic performance of the students. To analyse the factors affecting the students' academic performance in our study areas, which is measured in terms of percentage of marks they received in their examination of XII grade, we estimated some multi-variable regression models. The individual as well as family characteristics of the respondents namely, poverty status, caste, religion, presence of children belonging to age group 0-15 years old, whether the students stays at home or not, education level of the mother, number of private tutors taught them, distance of their residence from school, uses of technology, regular attendance in the school are used as explanatory variables in this analysis. Our main finding from the regression exercises for the combined group is that the students who belong to APL families, who are Hindus, who stayed at home, who have minor children in their

families are more likely to perform better in their examination of XII grade. Moreover, daughter of higher educated women, no of private tutor, regular attendance also positively affects the academic performance of the students. Moreover, women of socially disadvantaged group and who uses the technology are less likely to achieve better academic scores in their XII grade. Among these, poverty status, presence of minor children, mother's education level, number of private tutor, uses of technology turned to be statistically significant. The effects of above such variables on academic performance of the girl students vary across different streams. Stream-wise analysis reveals that, number of private tutor positively affects the academic performance of the students of both the stream. Whereas, regular attendance in the school positively and significantly affects the academic performance of the students of the science stream only, not the academic performance of the students of the arts stream.

## Policy Prescription

Further research is needed to explore the students' high dependence on private tutors for their academic achievement. It might be due to the poor quality of teaching, higher student strength in a class or students' attitude to follow short cut policy to achieve better score rather than to gather knowledge. Further study of effects of academic performance on future achievements might be explaining the students' attitude towards acquiring knowledge.

## Endnotes

[1.] This cannot be interpreted as lack of efficiency of the teachers of academic institutions as in maximum cases teachers are involved in private coaching. Analysis of other factors like high student strength in a class, involvement in mid-day meal preparation, casual attitude of the teacher and the perception of the parents towards teaching practices in the academic institution may offer some insights on this high dependence on private tutor.

[2.] In our study area, we find a negative relationship between the family size and the academic performance of the students (r = -.04 for the Arts stream and r =.06 for the science students.

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